

Scientific publication

One Health in Coastal and Marine Contexts: A Critical Bibliometric Analysis Across Environmental, Animal, and Human Health Dimensions

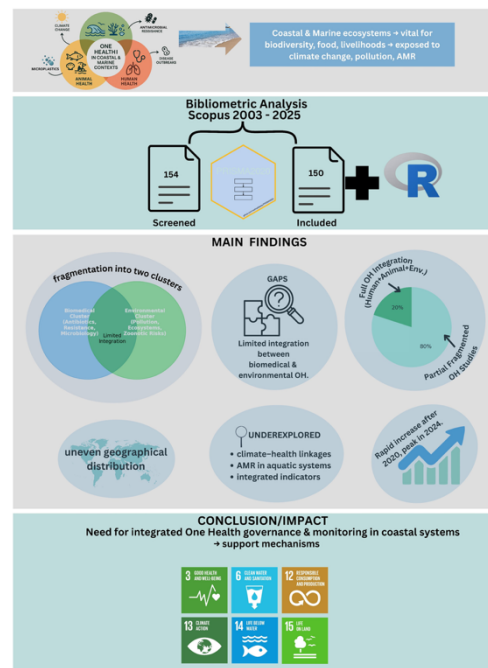
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Coastal areas bring humans, animals and ecosystems into particularly close contact. Pollution, climate change, antimicrobial resistance and changes in marine ecosystems can create risks that cross the traditional boundaries between environmental, animal and human health.

The One Health approach is intended to help researchers and decision-makers understand these connections. But how thoroughly has it been applied to coastal and marine environments? Which subjects receive the most attention? And are the three dimensions of One Health truly being studied together?

Taking Stock of Two Decades of Research

To explore these questions, researchers from the University of Thessaly conducted a bibliometric analysis of the scientific literature. Rather than collecting new environmental or health data, they examined existing publications to understand how this field of research has developed.

The researchers searched the Scopus database for English-language publications combining One Health or related approaches with coastal and marine issues. The search covered the period from 2003 to August 2025, although the publications identified began in 2013. The team then analysed publication trends, recurring topics,



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geographical representation, scientific collaborations and the relationships between keywords.

In other words, the study does not assess the health of a particular coastline. It maps the scientific landscape, showing where research activity is growing and where important connections may still be missing.

A Growing but Still Fragmented Field

The study reveals a clear increase in scientific interest. Between 2013 and 2018, annual output remained low and irregular, with only one to four papers published each year. It then accelerated, rising from 12 publications in 2021 to 18 in 2022, 27 in 2023 and 37 in 2024. The partial figure for 2025 was also already considerably higher than the annual totals recorded before 2020.

This growth shows that the links between coastal ecosystems and human and animal health are attracting increasing attention. Yet more publications do not necessarily mean greater integration. Fewer than 20% of the studies analysed explicitly brought together all three One Health dimensions: human health, animal health and environmental health.

The researchers identified two broad and partially connected areas within the literature. One is largely oriented towards biomedical and microbiological topics, including antibiotics and antimicrobial resistance. The other focuses more strongly on environmental issues such as pollution, heavy metals, microplastics and ecosystem health. Both contribute to One Health research, but their partial separation suggests that biomedical and environmental research communities do not yet work together as closely or consistently as the approach requires.

The research landscape is also geographically uneven. The United States, Brazil and the United Kingdom were among the most prominent contributors, alongside several European countries and China. Many coastal regions in Africa, the Middle East and parts of Southeast Asia appeared less frequently in the publications and collaboration networks analysed, despite their exposure to significant environmental, climatic and health pressures.

This does not mean that relevant research is absent from these regions. The findings apply specifically to the English-language publications indexed in Scopus and identified through the study's search terms. Work published elsewhere, in other languages or using different terminology may not have been captured.



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Where Coastal One Health Research Needs to Go Next

The study portrays a research field that is expanding rapidly but remains divided across disciplines, themes and regions. Its next stage of development will require closer collaboration between biomedical, veterinary, environmental and social research communities, as well as more studies that explicitly connect all three dimensions of One Health.

The authors also highlight the need for broader geographical representation. Increasing the participation of currently underrepresented coastal regions would help build a more complete evidence base and ensure that research reflects a wider range of environmental, climatic and health realities.

Another priority is the development of shared indicators capable of connecting environmental conditions with animal and human health. These connections could make One Health research more useful for coastal monitoring, climate adaptation and governance.

Developed with support from the ENHANCE project, the study contributes to this effort by clarifying how the field has evolved, where its main divisions remain and which areas require further attention. It offers a map of published research rather than an evaluation of every coastal One Health initiative or its effectiveness in practice.



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